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Dr. F. W. Barry's Report to the Local Government Board on a death which was alleged to have been caused by vaccination in the Northern District of the Derby Union.

GEORGE BUCHANAN,

Medical Department,

December 20, 1882.

IN consequence of local information of the occurrence of a death which was alleged to have been caused by vaccination at Derby, I was directed by the Board on November 17th to institute an inquiry into the circumstances of the case.

I accordingly proceeded to Derby, and at once placed myself in communication with Mr. Legge, the public vaccinator of the district in which the case had occurred, and obtained from him his vaccination register containing the particulars of the case in question. I also took possession of the lancet with which he was in the habit of performing his public vaccinations, and a needle with which he opened the vesicles on the eighth day.

The case to which attention was drawn was that of a child named Edith Chalkley, of 3, West Row, Darley, who was vaccinated by Mr. Legge on the 13th September, inspected on the 20th September, and who died on the 13th November, the cause of death being certified by Mr. A. O. Francis, M.R.C.S., as from "Abscesses (two months), Exhaustion."

The following is a brief history of the case, as obtained from the mother:—

The child, who was then three months of age, was taken to the vaccination station in Lodge Lane, Derby, on the 13th September, and was there vaccinated by Mr. Legge on the left arm in three places. The vaccination went on all right in two places, but the third did not seem to come forward properly. The child was again taken to the station on the following Wednesday (September 20th) for inspection, and Mr. Legge then opened the places with a needle and took matter (lymph) from two of the places (vesicles). He did not ask any questions or examine the child's person prior to taking the matter.

There was at the time little or no redness about the place where the child was vaccinated, but two days afterwards (22nd September) a rash (red pimples and wheals) came out over its body, and the left arm inflamed from the elbow to the wrist and became hard and painful. During the same week a lump began to form in the left armpit, which gradually increased to the size of a duck's egg, and eventually burst, discharging a quantity of matter. On the 29th September, abscesses began to form on both sides of the neck, and these eventually broke and discharged. About the beginning of October, she noticed the inflammation spreading across the back to the right arm. This was succeeded by a swelling under the right armpit, and at the right elbow, and by the end of the first week of that month (October) the latter swelling broke and continued to discharge matter until the 30th October, when a piece of gristle was expelled. The abscess under the right armpit also broke and the child died from exhaustion on the 13th November, exactly two months from the date of vaccination. At the time of her death lumps, which were apparently abscesses in process of formation, also existed in the back and groins. The vaccination places had in the meantime dried up.

Mrs. Chalkley further stated that both she and her husband had always enjoyed good health, that she had had two other children, one of whom had died soon after its premature birth at eight months, the other was still living, had been successfully vaccinated, and was to all appearance a healthy child. The deceased was treated from the commencement of her illness by Mr. A. O. Francis, M.R.C.S., at his dispensary in Derby.

Mr. Francis was unfortunately not able to give me very much additional information, as owing to the fact of its being a dispensary case, he had not kept an account of the

visits or treatment. He stated that he treated the child for abscesses in the axilla, neck, and right elbow; that so far as his memory served him, there was no erysipelas when the child was first brought to him, but that he did not make a full and particular examination. He did not consider that the child was suffering from syphilis; he did not see it after 6th November. The child was clean and well cared for.

I may as well state here that the house was in fair sanitary condition, no drain inlets being apparently situated in it, whilst the privy was at a considerable distance from the house.

The above imperfect account gives all the information that I was able to obtain with regard to the history of Edith Chalkley's illness, yet imperfect as it is, the symptoms were apparently those one would expect to find in a case of septic infection, resulting either from an inoculation with active septic material, or with the infective products of inflammation.

Taking this hypothesis, the question next arose as to whether, either at the time of vaccination or of inspection, there was any possibility of the transmission or inoculation of such septic material, and to ascertain this I deemed it necessary, firstly to enquire into the history of all the children who had been at the station on the 13th and 20th of September, these being the days on which Edith Chalkley attended. This of course included such cases as had been vaccinated on the 6th, they having attended for inspection on the 13th, and some of them naturally having acted as vaccinifers to the children then operated upon. Secondly I examined minutely into all the circumstances connected with the performance of the operation itself by the public vaccinator, to ascertain whether the untoward results might be traced to any careless or accidental inoculation with septic matter.

(A.) The total number of children into whose history I found it necessary to inquire was thirty. Of these, seven were vaccinated on the 6th, 13 on the 13th, and 10 on the 20th. A copy of the public vaccinator's register with reference to these cases is appended.

In the following table is shown the derivation of the lymph supply, as ascertained from the above-noted register, of all the cases vaccinated on the 13th and 20th September.

TABLE showing lymph derivation of cases vaccinated at Derby on the 13th and 20th September 1882.

September 6th.		September 13th.		September 20th.	
(a.) Harratt (223)	- -	{ Bladon (235) - - -	-	{	—
		{ Sims (236) - - -	-	{	—
		{ Bretnor (237) - - -	-	{	—
(b.) Randle (224)	- -		—		—
(c.) Randle (225)	- -		—		—
(d.) Hook (226)	- -	{ Hartle (241) (<i>see text</i>) - -	-	{	—
		{ Brown (242) (<i>see text</i>) - -	-	{	—
(e.) Watts (227) -	- -	{ Swan (238) - - -	-	{ Lapworth (251).	
		{ Parker (239) - - -	-	{ Tarr (252).	
		{ Chalkley (240) - - -	-	{ Wood (243).	
				{ Tomlinson (244).	
				{ Southall (245).	
				{ Curtis (246).	—
(f.) Ogden (228)	- -		—		—
(g.) Smedley (229)	- -	{ Baggellay (231) - - -	-	{ Ollernshaw (247).	
		{ Smith (230) - - -	-	{ Topham (248).	
		{ Sprenthall (232) - - -	-	{ Taylor (249.)	
		{ Folder (233) - - -	-	{ Hales (250).	
		{ Smith (234) - - -	-		—

The figures in brackets refer to the numbers in the public vaccinator's register.

As a matter of convenience I propose to deal with each case that was vaccinated on September 6th, in the order in which it stands in the register, and in cases where these have acted as vaccinifers, I shall give at the same time the history of their derivatives.

(a.) *Harratt, Florence C.*, aged 5 months. Vaccinated September 6th. Inspected* 13th September. Vaccination took ordinary course. No untoward result.

Bladon, Fanny D., aged 5 months. Vaccinated September 13th from Harratt. Inspected 20th. After the inspection the arm became inflamed to a slight extent. This, however, was at once subdued by the application of bread poultices. No untoward results.

Sims, Annie, aged 3 months. Vaccinated 13th September from Harratt. Inspected 20th. Vaccination normal.

Bretnor, Grace, aged 2 months. Vaccinated 13th September from Harratt. Inspected 20th. Vaccination normal.

(b.) *Randle, Ellen*, aged 3 months. Vaccinated 6th September. This child never came for inspection. Her parents were stated to have made a "moonlight flit," and no traces of them could be found.

(c.) *Randle, Harriet*, aged 4 months. Vaccinated September 6th. Inspected 13th. The vaccination in this case was stated to have taken a normal course.

(d.) *Hook, Mary Ellen*, aged 2 months. Vaccinated September 6th. This child was never inspected by the public vaccinator, having been taken ill with bronchitis immediately after the operation was performed. The mother called in Mr. Rice, M.R.C.S., and he directed her not to take the child to the station, but to go there herself and say that the operation had been successful. I must here note a serious error in the public vaccinator's register, where the child appears as having been inspected at the station on the 13th, and to have further acted as vaccinifer to cases 241 and 242, which was manifestly impossible. Such entries as these naturally render the register untrustworthy, and throw a doubt on the derivation of lymph in other cases.

Hartle, Alice, aged 3 months. Vaccinated 13th September. Vaccinifer unknown, probably Watts. Inspected 20th. The mother states that the child was vaccinated in three places, only one of which took. The case went on well until two days after inspection, when the arm began to swell, and became red and hard. Eventually two blisters formed on the back of the hand, which burst after the application of poultices, and the child is now well. No lymph was taken from this child on the 20th, in fact, Mr. Legge is stated never to have touched it on that day. This case was attended professionally by Dr. Stanley Taylor, from whom I ascertained the following particulars:—He said that he first saw the child on the 22nd September at the house of a Mrs. Gleeson, whom he had been attending for some days for severe facial erysipelas. The child at that time was suffering from a slight attack of the same disease. There was no doubt that Mrs. Hartle with the child was continually in Mrs. Gleeson's house during her illness, she being a very near neighbour, and there was thus ample opportunity for transmission of the disease from Mrs. Gleeson to the child, and there can be no doubt that the child's illness after its vaccination was due to this cause.

Brown, Edith M., aged 3 months. Vaccinated September 13th. Vaccinifer unknown, probably Watts. Inspected 20th. Vaccination normal.

(e.) *Watts, William*, 5 months. Vaccinated 6th. Inspected* 13th September. This child is the one said to be the vaccinifer in Edith Chalkley's case. This is an extremely healthy and strong looking boy. The mother stated that the course of vaccination was quite normal; that the areola developed was slight, and that the scabs dropped off about the 28th day. There are at the present time, three well marked scars. The mother further said that neither she nor her husband had ever suffered from ill health, and that she had had twelve children, of whom nine are living. She also told me that the vesicles in this case were very plump, and Mr. Legge obtained a large supply of lymph from them.

Swan, Henry, aged 3 months. Vaccinated 13th of September from Watts. Inspected* 20th. Vaccination perfectly normal.

Lapworth, Sarah Ellen, aged 3 months. Vaccinated 20th September from Swan. Inspected 27th. Vaccination normal.

Tarr, Arthur C. E., aged 2 years. Vaccinated 20th September from Swan. Inspected* 27th. The mother stated that the child suffered from a rash about a month after vaccination, for which she blamed the operation, and that since then he had become very weakly and had had lumps in different parts of his body. In consequence of its condition, Mr. Legge (her medical attendant) had procured its admission into the Children's Hospital, where it was at the time of my visit. Upon inquiring of Mr. Legge the nature of the child's illness, he informed me that when he was first called in it was suffering from chicken-pox, which was succeeded by erythema nodosum, and this he attributed to poor and insufficient feeding. I may here state that Mrs. Tarr, who has recently become a widow, told me that owing to her reduced circumstances she had not been able to give her children enough food. I saw the child at the hospital and found it to be suffering from what was apparently well marked erythema nodosum, a disease in no way attributable to vaccination.

Parker, William John, aged 2 months. Vaccinated 13th September from Watts. Inspected* 20th. Vaccination normal.

Wood, Selina, aged 3 months. Vaccinated 20th September from Parker. Inspected* 27th. Vaccination normal.

Tomlinson, Harry, aged 5 months. Vaccinated 20th September from Parker. Inspected* 27th. Results normal.

Southall, William, aged 3 months. Vaccinated 20th September from Parker. Inspected 27th. Results normal.

Curtis, Norman, aged 3 months. Vaccinated 20th September from Parker. Inspected 27th. Unsuccessful. This child has since been successfully vaccinated.

Chalkley, Edith. The history of this case, which was vaccinated from Watts, has already been given at length.

(f.) *Ogden, Harriet*, aged 3 months. Vaccinated 6th and inspected 13th September. Vaccination normal.

(g.) *Smedley, Mabel M.*, aged 2 months. Vaccinated 6th, Inspected* 13th September. Results normal.

Baggellay, James, aged 4 months. Vaccinated September 13th from Smedley. Inspected* 20th. Results normal.

Ollernshaw, Ernest, aged 3 months, Vaccinated 20th September from Baggellay. Inspected 27th. Results normal.

Topham, Martha Alice, aged 4 months. Vaccinated 20th September from Baggellay. Inspected 27th. Father states that vaccination took well, and ran through its normal course without ill effects. The child, however, was taken ill about the beginning of October and died on the 1st November, death being certified by Mr. G. Rice, M.R.C.S., as from "Marasmus." The disease had no connexion with vaccination.

Taylor, Sarah A., aged 5 months. Vaccinated September 20th from Baggellay. Inspected 27th. Results normal.

Hales, Frances, aged 3 months. Vaccinated 20th September from Baggellay. Inspected 27th. This child left the town, and no information could be obtained regarding it.

Smith, Sarah, aged 2 months. Vaccinated September 13th from Smedley. Inspected 20th. Results normal.

Sprenthall, Agnes B., aged 8 months. Vaccinated 13th September from Smedley. Inspected 20th. Results normal.

Folder, Alfred, aged 3 months. Vaccinated 13th September from Smedley. Inspected 20th. Results normal.

Smith, Catherine, aged 5 months. Vaccinated 13th September from Smedley. Inspected 20th. Results normal.

Note.—In the cases marked with an asterisk (all of whom were employed as vaccinifers by Mr. Legge) the parents stated that the public vaccinator took lymph from the vesicles on the eighth day, but that in no case were any questions asked with regard to the health of the child or its parents, nor was any examination made of the child's person.

From the above notes it will be seen that of the 30 cases with regard to which inquiries were made in 25 the results of the vaccination were perfectly normal, and that of these one subsequently died of a disease unconnected with vaccination. Of the remaining five, the operation was unsuccessful in one case, two had removed out

of the district and could not be traced, one was the case with regard to which this inquiry was directed, and the last suffered from erysipelas, which, from the history of the case, was doubtless due to direct contagion from a previous idiopathic case of that disease.

(B.) With regard to the performance of the operation by the public vaccinator. Mr. William Legge, M.R.C.S. and L.S.A., was appointed public vaccinator for the north district of the Derby Union on the 24th August of the present year. He does not hold a certificate of proficiency in vaccination, such certificate not being requisite in the case of practitioners registered before 1st January 1860, and Mr. Legge was registered on 1st January 1859. In accordance with his contract he attends at the Wesleyan School-room in Lodge Lane every Wednesday from 2 to 3 p.m. I had an opportunity of personally inspecting his mode of work on the 22nd of November, and as this is peculiar I will proceed to describe it.

The instruments ordinarily used by this gentleman for the transfer of lymph from child to child consist of (a) an ordinary lancet; (b) a needle fixed in a handle; (c) capillary tubes; (d) small squares of glass. Having selected a vaccinifer Mr. Legge opens the vesicles with the needle, and then collects the lymph in capillary tubes; these are placed on the table unsealed, and as each child comes up for vaccination the contents of one of the tubes is blown on to one of the small squares of glass, the lymph is taken from the glass square by means of the lancet, and the vaccination is then performed by scratching the child's arm with the charged lancet.

Mr. Legge stated that he used the capillary tubes over and over again, although not knowingly at the same sitting, and he says that he always submits them to a careful cleansing with water before using them a second time.

On the date of my inspection the vesicles were opened with a lancet, as I had forwarded the needle to London for examination.

Mr. Legge further stated that up to the beginning of November, he was in the habit of blowing the contents of the tubes directly on to the lancet with which he operated, without the intervention of the square of glass.

If all the lymph so collected is not required, the tubes are sealed up and reserved either for future use at the station or for transmission to other practitioners.

I obtained some of the tubes which had been charged on the 8th November and reserved them for future examination, and to them I shall again have occasion to refer. I also took possession of such capillary tubes as were used for taking lymph on the 22nd inst., before, however, they had been submitted to any cleansing process.

The course of procedure above described, even if it were carried out with the greatest possible care and with the most scrupulous attention to the cleanliness of each unit of the complicated apparatus used, undoubtedly affords peculiar facilities for the contamination of the lymph by foreign matter, and without having, as far as I can see, any advantage over the ordinary method.

The lancet and needle ordinarily used and the above mentioned charged and uncharged capillary tubes were submitted to Mr. Farn of the National Vaccine Establishment for examination on the 23rd inst., and on the 24th November he reported as follows:—

“The lancet is found to be without a point, rusty and dirty; the vesicle-opener also rusty and dirty.”

“The fine tubes which profess to be uncharged (and concerning which the statement is made that they, or some of them, have been used for taking lymph but have not been since cleansed) are found to be empty and clean, with the exception of one, which contains some albuminous matter coating its interior.”

“Along with them was a charged tube, of which the ends had been melted but not sealed, and from which the greater part of the contents had escaped, dirtying the exterior of the empty tubes.”

“Two tubes marked as charged from 317 contained each a small quantity of opaque lymph, one also a little blood. They were sealed. Two tubes marked as charged from 318 contained each a small quantity of opaque lymph, slightly bloody, and were not sealed. Another tube containing lymph, of which the source was not recorded, contained a small quantity of opaque lymph and was not sealed.”

If the instruments were habitually in the condition described above, the possibilities of the inoculation of septic matter at both the periods of vaccination and of opening the vesicles, are endless.

The repeated use of the same capillary tubes is also a most dangerous practice, as it is extremely doubtful whether it is possible to cleanse such tubes effectually after they have been once used.

I have already pointed out the non-observance by the public vaccinator of the instructions with regard to the examination of both vaccinifers and vaccinees, and to this I must add that Mr. Legge disobeys the instructions laid down for public vaccinators by a habit that he has of vaccinating children who are suffering from eczema, in the hope of curing the eczema.

On the date of my visit to the station five children appeared for inspection and some seven or eight for vaccination. As, however, the vesicles in three of the five cases were surrounded with a slight areola, I suggested that those children should not be used as vaccinifers, and that Mr. Legge should obtain a fresh strain of lymph from the National Vaccine Establishment. I directed Mr. Legge in future to carry out strictly the instructions of the Board dated 29th July 1871, and also to vaccinate directly from arm to arm.

In conclusion I have the honour to submit the following summary of the principal facts noted respecting the child Edith Chalkley and the conclusions arrived at from the inquiry.

1. That from the history of the case of the child Edith Chalkley there is a strong probability that she suffered from septic disease.
2. That the disease was probably communicated to her at or about the period of inspection.
3. That it is quite certain that the lymph furnished by Watts did not convey any septic infection, and that there is nothing to suggest that other lymph in use at this time conveyed any such infection.
4. That Mr. Legge's method of transferring lymph by the needless intervention of tubes and glasses, his use of dirty instruments, his practice of using the same capillary tube again and again, and his habit of storing lymph in unsealed tubes, afford numerous opportunities for the introduction of septic matter into vaccinifers, and into children presented for vaccination. There is no direct evidence of the way in which septic infection was communicated to the child Chalkley, but there can be very little doubt that it was inoculated into that particular child from some dirty appliance used by Mr Legge.
5. That the public vaccinator has rendered himself liable to grave censure for the erroneous entries in his register, and for his manifold disobediences to the Board's instructions of 29th July 1871.

FRED. W. BARRY, M.D.

29th November 1882.

EXTRACT from the PUBLIC VACCINATOR'S REGISTER of the NORTH DISTRICT of the DERBY UNION, giving Particulars as to CHILDREN vaccinated during September 1882.

1. No. of Case consecutive to 600, and then to be repeated.	2. Date of Vaccination.	3. Name.	4. In case of Re-vaccination of Adults, and Adolescents suc- cessfully vaccinated in early life mark H.	5. Age.		6. Place of Residence.	7. Where vaccinated.*	8. Name or No. in Register of the subject, with whose Lymph the Vaccination is performed, or insert N.V.B. if the Lymph be sent by the National Vac- cine Establishment, or state other source, if any.	9. Initials of Person performing the Vaccination.	10. When and where In- spectd.*	11. Initials of the Person In- spectg.	12. Result.		13. Date of sending Certificate to the Vaccination Officer.	14. Fee due in respect of each Case of successful Vaccination.	15. Fee due in respect of each Case of successful Re-vaccination.
				Years.	Months.							Successful.	Unsuccess- ful.			
223	1882. Sept. 6	Harratt, Florence C.	—	—	5	Pegg's Yard, Friar Gate	Station	213	W.L.	1882. Station.	Sept. 13 Gone away.	S.	—	Sept. 13	1	—
224	"	Randle, Ellen -	—	3	3	Ct. Rich Street	"	"	"	"	"	S.	—	"	6	—
225	"	Randle, Harriett	—	4	2	35, Green Street	"	210	"	"	"	"	—	Sept. 13	1	6
226	"	Hook, Mary Ellen	—	4	2	29, Back Parker Street	"	"	"	"	"	"	—	"	6	6
227	"	Watts, William	—	5	5	111, Cobden Street	"	"	"	"	"	"	—	"	6	6
228	"	Ogden, Harriett	—	3	3	34, Gisborne Street	"	222	"	"	"	"	—	"	6	6
229	"	Smedley, Mabel M.	—	2	2	Peel Street	"	"	"	"	"	"	—	"	6	6
230	Sept. 13	Smith, Sarah	—	—	2	67, Willow Row	"	229	"	"	Sept. 20	"	—	Sept. 20	1	6
231	"	Baggaley, James	—	—	4	Wide Yard, Bridge Street	"	"	"	"	"	"	—	"	6	6
232	"	Sprethall, Agnes B.	—	—	8	37, Shaw Street	"	"	"	"	"	"	—	"	6	6
233	"	Forder, Alfred -	—	3	3	90, Whitecross Street	"	"	"	"	"	"	—	"	6	6
234	"	Smith, Catherine	—	—	5	Ct., 6, Willow Row	"	"	"	"	"	"	—	"	6	6
235	"	Bladon, Fanny O.	—	—	5	93, Watson Street	"	223	"	"	"	"	—	"	6	6
236	"	Sims, Annie	—	—	3	6, Wright Street	"	"	"	"	"	"	—	"	6	6
237	"	Bretnor, Grace	—	—	2	15, Henry Street	"	"	"	"	"	"	—	"	6	6
238	"	Swan, Henry	—	—	3	31, New Chester	"	227	"	"	"	"	—	"	6	6
239	"	Parker, Wm. Jno.	—	—	2	78, Upper Brook Street	"	"	"	"	"	"	—	"	6	6
240	"	Chalkley, Edith	—	—	3	3, West Row, Darley	"	"	"	"	"	"	—	"	6	6
241	"	Hartle, Alice	—	—	3	6, New Chester	"	226	"	"	"	"	—	"	6	6
242	"	Brown, Edith M.	—	—	3	4, West Row, Darley	"	"	"	"	"	"	—	"	6	6
243	Sept. 20	Wood, Selina -	—	—	3	12, City Road	"	239	"	"	Sept. 27	"	—	Sept. 27	1	6
244	"	Tomlinson, Harry	—	—	5	3, Kedleston Road	"	"	"	"	"	"	—	"	6	6
245	"	Southall, William	—	—	3	25, Upper Brook Street -	"	"	"	"	"	"	—	"	6	6
246	"	Curtis, Norman	—	—	3	32, Ponsonby Terrace	"	"	"	"	"	"	—	"	6	6
247	"	Ollerenshaw, Ernest -	—	—	3	5, Museum Road, L. Chester	"	231	"	"	"	"	—	"	6	6
248	"	Topham, Martha Alice	—	—	4	4, Mid Brook Street	"	"	"	"	"	"	—	"	6	6
249	"	Taylor, Sarah A.	—	—	5	Clarence Road, Mansfield Road	"	"	"	"	"	"	—	"	6	6
250	"	Hales, Frances	—	—	3	Flowerpot Yard, King Street -	"	"	"	"	"	"	—	"	6	6
251	"	Lapworth, Sarah Ellen	—	—	3	6, Little Chester	"	238	"	"	"	"	—	"	6	6
252	"	Tarr, Arthur C. Edw.	—	2	—	41, Shaw Street	"	"	"	"	"	"	—	"	6	6

* Whether at the Vaccinator's residence or at an appointed Station (and if so, which), or where else.

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